Shock Layer Radiation Modeling (SLRM)

Completed Technology Project (2012 - 2019)

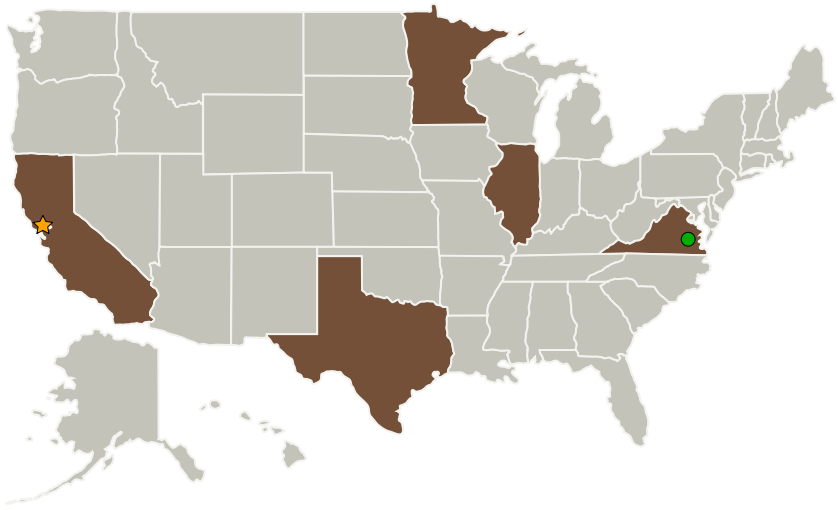
Project Introduction

Model and tool development to imrpove understanding and decrease uncertainties in the modeling of shock layer radiation produced during planetary entry.

Anticipated Benefits

This work benefits all NASA missions with an EDLsegment, including return from the moon. Workto date hasdirectlyimpacted thedesignof InSight, Osiris-Rex, Orion, andMars2020, including defining the radiative heating margin policies for those missions. The work directly benefits efforts to return engineering data from flight missions, including Orion and Mars 2020 The work directly benefits Discovery, New Frontiers and Flagship proposal activities in SMD; radiative heating is typically the largest heating uncertainty, and the perceived risk derived from poor knowledge of entry environments can impact selectability of proposed missions.

Primary U.S. Work Locations and Key Partners



Shock Layer Radiation Modeling

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Game Changing Development

Game Changing Development

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Organizations Performing Work	Role	Type	Location
Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Co-Funding Partners	Type	Location
Asteroid Threat Assessment(ATAP)	NASA Other	
Exploration Capabilities	NASA Program	
Multiple	Industry	Washington, District of Columbia
Orion	NASA Program	
Planetary Science	NASA Program	
Shared Capabilities Assets Program(SCAP)	NASA Other	
Space Technology Research Grants(STRG)	NASA Program	

Primary U.S. Work Locations	
California	Illinois
Minnesota	Texas
Virginia	

Project Management

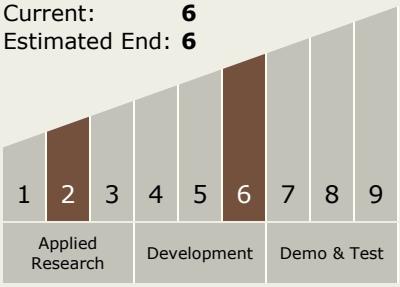
Program Director:
Mary J Werkheiser

Program Manager:
Gary F Meyering

Principal Investigator:
Michael J Wright

Technology Maturity (TRL)

Start: **2**
Current: **6**
Estimated End: **6**



Target Destinations

Earth, The Moon, Mars

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Project Transitions

October 2012: Project Start

September 2019: Closed out

Closeout Summary: This technology achieved its key performance parameters for a database. However, there are no TRL metrics for this technology.This technology achieved its key performance parameters for a database. However, there are no TRL metrics for this technology.

Project Website:

https://www.nasa.gov/directorates/spacetech/home/index.html